

its foot-glands. These are six geminate multinucleate bodies, arranged according to size and form as shown by fig. 10. The two in the median line are the smallest and exhibit the most characteristic form, being elongate-obovate, with somewhat flattened internal faces and long narrow ducts. Those of the second group are larger, elongate-obpyriform, and have almost horizontal irregularly sinuous ducts; while the third pair are robust, elongate-subcylindrical, and often variously curved or lobed. The ducts of all seem to meet to form a single common conduit; but they are so soon lost within the mass of foot-muscles, that it has not been possible to decide this point positively with my specimens.

EXPLANATION OF PLATE XIV.

- Fig. 1. *Notommata vorax*.
 Fig. 2. Ditto. Auricle.
 Fig. 3. Ditto. Toes.
 Fig. 4. *Proales hyalina*.
 Fig. 5. *Diglena contorta*.
 Fig. 6. *Mastigocerca spinigera*.
 Fig. 7. *Cathypna scutaria*.
 Fig. 8. *Cathypna glandulosa*; dorsal.
 Fig. 9. Ditto; ventral.
 Fig. 10. Ditto. The geminate foot-glands.

LXVIII.—*Descriptions of Eleven new Species of Land and Freshwater Mollusca from South Africa.* By JAMES COSMO MELVILL, M.A., F.L.S., and JOHN HENRY PONSONBY, F.Z.S.

[Plate XVII.]

WE consider that several of the Mollusca now to be described possess a peculiar interest, notably the *Achatinæ*, one of which has remained long unrecognized, though collected years ago in Bechuanaland by Dr. Livingstone; whilst the other, a remarkably conspicuous though variable form, inhabits the Drakensberg range of mountains. The discovery of a *Hapalus* so far south in the African continent is likewise important, whilst new forms of the attractive genus *Ennea* still continue to come to the front, no one species exhibiting much, if any, variability*.

* See Ann. & Mag. Nat. Hist. ser. 6, vol. xviii. p. 314.

Ennea Cairnsi, sp. n. (Pl. XVII. fig. 1.)

E. testa curta, cylindriciformi, parum rimata, albida, apice obtusissimo; anfractibus octo, superioribus angustis, paullum ventricosis, tribus ultimis rectis, undique longitudinaliter obliquistriatis: apertura rotunda; peristomate albo, incrassato, dentibus plicisve quinque munito, plica parietali permagna, crassa, valde intrante, dentibus labialibus duobus, quorum inferiore majore, dente basali parvo, plica columellari plus minusve superficiali, parum intrante, nec mammæformi.

Long. 8, lat. 4 mm.

Hab. Mouth of the Buffalo River, S. Africa (e coll. R. Cairns, Esq.).

A short, cylindrical, whitish species, of very neat appearance, extremely obtuse towards the apex, the whorls eight in number, narrow, the three lowest being straight. They are entirely longitudinally obliquely striate; the aperture is rounded; peristome white, thickened, furnished with five plaits or teeth—of these the parietal is the most conspicuous, being thickened and deeply penetrating; the labial teeth are two, the lower the larger; the basal tooth is similar to the upper labial, small and simple; the columellar plait does not, as in the majority of the South-African *Ennea*, seem deep-seated or mamillar, but superficial and simply plaited.

We have pleasure in naming this interesting form after Mr. Robert Cairns, Ashton-under-Lyne, who communicated it to us for description. Three specimens.

Ennea Burnupi, sp. n. (Pl. XVII. fig. 2.)

E. testa cylindrica, anguste sed profunde rimata, apud apicem attenuata, obtusa, albida; anfractibus novem, apud suturas impressis, parum ventricosis, undique longitudinaliter obliquistriatis; apertura rotunda; peristomate incrassato, dentibus plicisve quinque munito, videlicet, plica parietali magna, acinaciformi, intrante, dentibus labialibus duobus, quorum inferiore majore, dente basali acuto, parvo, plica columellari interna, acuto-mamillata.

Long. 8, lat. 4 mm.

Hab. Town Bush, Maritzburg, and Gordon Falls, on the Zwaartkop Mountain, Natal.

A pretty form, which comes in the same category as *E. regularis* and *aperostoma*, described by us in former years from the same neighbourhood. The last-named species differs, however, *in toto* in shape, being not so attenuate apically, but more evenly cylindrical throughout, and *E. regularis* is more compressed at the sutures, only six-, as against

nine-whorled, and also differently shaped, the mouth-processes being nearly identical; the mammiform columellar plait is, however, in *E. Burnupi* thinner, and not bulbous as usual.

Mr. Burnup, the collector of this and of so many other new species in Natal, remarks that this is the only species of the genus which he has hitherto met with living "off the ground, it having been discovered on the under surface of the leaf of a *Dracena*."

Hapalus catarractæ, sp. n. (Pl. XVII. fig. 4)

H. testa ovato-fusiformi, translucida, pertenui, lævi, pallidissime corneo-olivacea; anfractibus quinque, apicali obtuso, ultimo rapide accrescente, paullum inflato, immaculato: apertura parva, ovata, labro exteriore tenui, simplici; columella rectiuscula, regionem apud umbilicarem triangulatim reflexa.

Long. 4.50, lat. 2.50 mm.

Hab. Howick (a waterfall near Pietermaritzburg), Natal.

Four specimens of a very small but neat *Hapalus*, a genus not before known so far south, Bulimoid in its superficial conchological characters, allied apparently to *Pachnodus*, but its exact affinities are not yet certainly known. In the British Museum it is arranged near *Opeas*.

The shell is ovate-fusiform, very pellucid, of the palest horny olive, five-whorled, the apical being obtuse and the last whorl rapidly increasing, a little inflated; mouth small, ovate, outer lip thin, simple; columella straight and triangularly reflexed over the umbilical region.

This constitutes a particularly interesting addition to the South-African molluscan fauna.

*Trachycystis teretiuscula**, sp. n. (Pl. XVII. fig. 5.)

T. testa depresso-globulosa, anguste sed profunde umbilicata, tenui, delicata, olivaceo-cornea; anfractibus sex, ventricosis, apud suturas impressis et quasi-caniculatis, arctissime longitudinaliter et indistincte striatulis; apertura lunata; peristomate tenui, simplici.

Long. 3, lat. 4 mm.

Hab. Howick, near Pietermaritzburg.

Though small and without any very special characteristics, we are quite unable to match this little *Trachycystis*. It is depressedly globular, narrowly but deeply umbilicate, thin, uniformly olive-horny in colour, six-whorled, the whorls being tumid and almost canaliculate at the sutures, so impressed

* *Teretiusculus*, small and smooth.

are they. The extremely delicate striæ are so indistinct as to be hardly discernible; but they give a silky appearance to the surface. The mouth is linear; peristome thin, simple.

Four specimens.

Achatina Livingstonei, sp. n. (Pl. XVII. fig. 6.)

A. testa angusta, fusiformi, tenui, straminea, lævi, apice obtuso; anfractibus septem, apud suturas paullum impressis, ventricosulis, ultimo cæteris longitudine superante, longitudinaliter flammis zebrinis castaneis decorata, flammis hic rectis, illic ramosis vel divaricatis; apertura ovata, labri margine exteriori tenui, columellari versus basin truncato.

Long. 41, lat. 20 mm.

Hab. Kuruman, Bechuanaland (*David Livingstone*: in coll. *E. L. Layard*).

Shell somewhat narrow, fusiform, thin, smooth, apex obtuse; whorls seven, somewhat ventricose, impressed at the sutures, straw-coloured, and ornamented with chestnut zebrine longitudinal markings; these are in some instances straight, in others branched and almost divaricate; the last whorl exceeds all the others collectively; the mouth is rather narrowly ovate, outer lip thin; columellar margin truncate towards the base.

Allied to *A. Pfeifferi*, Dunker, and *A. polychroa*, Morelet.

We are glad of the opportunity afforded us, through the kindness of Mr. Layard in lending this most interesting shell to describe, of associating with it the name of the illustrious pioneer of missionary enterprise in Tropical Africa, the late Dr. Livingstone, by whom it was discovered.

Achatina drakensbergensis, sp. n. (Pl. XVII. fig. 7.)

A. testa magna, fusiformi, delicata, nitida, apice obtuso; anfractibus octo, ad suturas impressis, ventricosulis, albidis; epidermide luteo-olivacea omnino contacta, apicalibus exceptis, interdum fere lævibus, flammis zebrinis brunneo-castaneis depictis, ultimo anfractu simili modo superne apud medium, sed a medio usque ad basin immaculato, interdum anfractibus minute granulatis, flammis zebrinis fere absentibus, hic illic vittis vel flammulis interruptis solum designatis, ultimo anfractu infra medium similiter immaculato; apertura oblonga intus cærulescente, labro extus tenui, margine columellari sinuoso, conspicue apud basin truncato.

Long. 3.25, lat. 1.75 unc.

Hab. Inhluzan, Drakensberg range, Natal.

A highly interesting form, two varieties of which are before us. The shell is fusiform, with ventricose whorls, somewhat

impressed at the sutures; the ground-colour is white, but, with the exception of the apical whorls, a yellowish-olive epidermis more or less shining entirely covers the shell; this is ornamented with longitudinal zebra-like flames, more or less pronounced. In one specimen they are regular and entirely cover the surface till the middle of the last whorl, below which it is smooth, shining, and spotless. This variety is much smoother than the other, which is more or less covered with the minute cross granulations so common in members of this genus, while the zebra-like markings are almost obsolete. The mouth is oblong, within bluish, outer lip thin, rounded; columellar margin sinuous, markedly truncate towards the base.

Buliminus (Pachnodus) carinifer, sp. n. (Pl. XVII. fig. 8.)

B. testa obtecte umbilicata, conico-pyramidata, perfragili, nitente, undique minute decussata; anfractibus septem, quinque supernis attenuatis, ventricosulis, ad suturas impressis, duobus ultimis expansis, ultimo apud peripheriam acuticarinato, carina ipsa nitida, rufo-brunnea; apertura trapezoide, labro exteriori per-tenui, uniangulata, simplici; columella pallida, regionem apud umbilicarem valde reflexo.

Long. 18, lat. 12 mm.

Hab. Gordon Falls.

This handsome but very delicate *Buliminus* seems to us quite distinct from the allied *B. natalensis*, Krauss. It is as conspicuous a shell, of a bright warm brown colour, pyramidal in shape, seven-whorled; of these the upper five are attenuate and small, the last two expanding; at the periphery is a particularly acute keel, shining and of a red-brown colour. The whole shell, except the apical whorls, is covered with a minutely decussate sculpture. Mouth trapezoid, outer lip thin, angular; columella whitish, reflexed over the umbilicus, which is narrow but deep.

Subulina tugelensis, sp. n. (Pl. XVII. fig. 9.)

S. testa attenuata, fusiformi, pellucida, delicatula, pertenui, albolactea; anfractibus septem, quorum apicali obtusissimo, papillato, cæteris ventricosulis, lævibus, ultimo producto; apertura oblonga; peristomate tenui, simplici; columellari margine recto.

Long. 14, lat. 4 mm.

Hab. Lower Tugela River, Natal.

An interesting form, more glossy than most of the hitherto recognized South-African species, of a beautiful translucent milky-white colour; whorls seven, the apical being very

obtuse, the rest slightly ventricose, all very smooth and shining; the last whorl is straightly produced; outer lip thin, simple; columellar margin straight.

*Pupa (Faula) pereximia**, sp. n. (Pl. XVII. fig. 3.)

P. testa sinistrorsa, pyramidata, subrimata, apud apicem multum attenuata; anfractibus novem, quorum duobus apicalibus tumidis, cæteris apud suturas canaliculatis, quasi laterculatis, omnino longitudinaliter rude liratis, liris arctis, incurvis, ultimo anfractu curtato; apertura rhomboidea; peristomate albo, rugifero, incrassato, novem plicis vel dentibus instructo, duabus plicis parietalibus, similibus, valde intrantibus, duobus dentibus labialibus, quorum inferiore plicato, majore, duabus plicis basalibus, perlongis, intrantibus, duabus plicis columellaribus et, juxta basin, uno dente parvo.

Long. 7, lat. 4 mm.

A highly ornate little *Faula*, near *F. Glanvilleana*, Ancey, but of considerably larger size. The specimens before us are unfortunately not in very good condition, but happily the mouth-processes in one are quite perfect. The shell is turbinate or pyramidal, subrimate, sinistral, much attenuate towards the apex, nine-whorled (inclusive of the two tumid apical); the whorls are canaliculate at the sutures and have the appearance of tiling, each superimpending the other; they are rudely lirate, the liræ close, incurved; the last whorl is short; aperture rhomboid; outer lip white, wrinkled, with nine plaits or teeth—of these the parietal plicæ (2) and the basal (2) are long, thin, and deep-seated, and very similar, as are the two columellar plaits, the labial teeth (two), and one small columellar; one of the labial comes very near being a plait.

Planorbis (Segmentina) planodiscus, sp. n.

(Pl. XVII. fig. 10.)

P. testa placentali, depressiuscula, declinata, nitida, olivacea, pellucida, tenui, apice depresso; anfractibus quinque, ad suturas canaliculatis, ventricosulis, ultimo rapide accrescente, disco superiore subrotundato, inferiore planato, profunde excavato, segmentis ad basin perspicuis, peripheria obtusangula; apertura oblique obtuso-triangulari; peristomate simplici.

Alt. 1, diam. 5 mill. (sp. majoris).

Hab. Umgeni Valley, Natal.

An olivaceous shining *Segmentina*; depressed, thin, five-

* *Pereximius*, extremely beautiful.

whorled, canaliculate at the sutures, the upper disk rounded, the lower planate, deeply excavate; the lamellar segments clearly perceived radiating round the umbilicus; the shell is obtuse-angled at the periphery; the mouth is obliquely obtuse-triangular, lip simple.

Four specimens.

We have taken the largest specimen as the type.

Assimineea tyttha *, sp. n. (Pl. XVII. fig. 11.)

A. testa minuta, cornea, fere lævi, globoso-conica, solidiuscula; anfractibus quatuor, apicali obtuso, cæteris ventricosis, longitudinaliter indistincte striatulis, ultimo rapide accrescente, cæteris conjunctim magnitudine superante; apertura subrotunda; peristomate rotundo, simplici; columella obliqua, crassiuscula; operculo rubro, littoriniformi, normali.

Long. 1.50, lat. 1 mm.

Hab. Howick, near Pietermaritzburg, "on the under surface of the leaves of a sage-like shrub" (*Mr. Burnup*).

A few specimens of a very small *Assimineea*, bearing some likeness to *A. litorina*, Delle Chiaje, a native of British and South-European shores. The shell is bright horny, almost smooth, being indistinctly longitudinally striate, rather solid, four-whorled, the apical whorl obtuse, the rest tumid, the last whorl much larger than all the rest together; mouth almost round, outer lip round, simple; columella oblique, thickened; operculum normal.

* τυτθός, small.

EXPLANATION OF PLATE XVII.

- Fig. 1. *Ennea Cairnsi*.
 Fig. 2. — *Burnupi*.
 Fig. 3. *Pupa (Faula) pereximia*.
 Fig. 4. *Hapalus catarractæ*.
 Fig. 5. *Trachycystis teretiuscula*.
 Fig. 6. *Achatina Livingstonei*.
 Fig. 7. — *drakensbergensis*.
 Fig. 8. *Buliminus (Pachnodus) carinifer*.
 Fig. 9. *Subulina tuyeleensis*.
 Fig. 10. *Planorbis (Segmentina) planodiscus*.
 Fig. 11. *Assimineea tyttha*.